

Staphylococcus aureus Infection, Invasive, Methicillin-Resistant (MRSA)

Agent: *Staphylococcus aureus* (bacteria) that have developed resistance to the class of beta-lactam antibiotics, including penicillin, cloxacillin, oxacillin, nafcillin, and methicillin, as well as cephalosporins and carbapenems.

Mode of Transmission: Person-to-person transmission via direct contact with colonized skin or skin lesions of an infected person, or by indirect contact with contaminated personal items or surfaces. Invasive infections occur when the bacteria penetrate normally sterile sites.

Signs/Symptoms: Invasive infections may affect the blood, bone, lung, and lining of the brain and spinal cord and may cause fever, difficulty breathing, chills, pain and other syndrome-specific signs and symptoms. Non-invasive skin and soft tissue infections commonly cause swelling, tenderness, and redness and can manifest as abscesses, boils, or pustules.

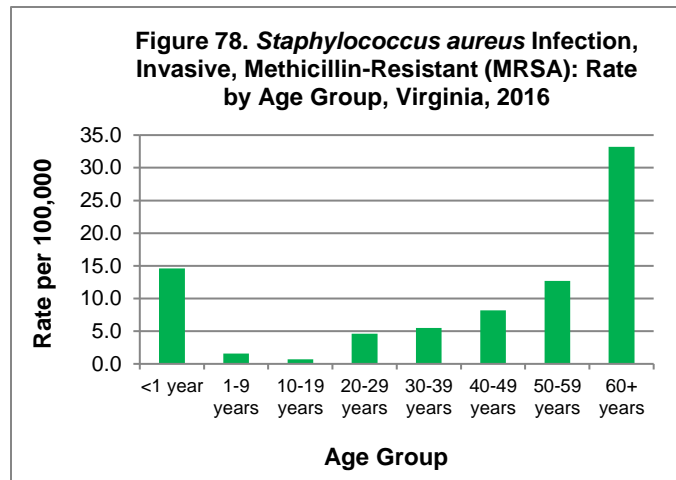
Prevention: In the community, preventive measures include practicing proper hygiene and wound care and cleaning hands regularly and thoroughly with soap and water or alcohol-based hand sanitizer. In healthcare settings, control measures include adhering to appropriate infection prevention practices, including management of catheters or other medical equipment, and practicing prudent use of antibiotics.

Other Important Information: Only invasive MRSA infections are required to be reported in Virginia and only laboratories are required to report these infections. Asymptomatic colonization and infections from non-sterile sites (e.g., skin and soft tissue) do not have to be reported to the health department. Reporting of this condition became effective in Virginia on October 26, 2007. On October 20, 2016 the Virginia Regulations for Disease Reporting and Control were updated and MRSA was removed from the reportable disease list. As of September 25, 2015, hospitals are required to provide information to VDH on MRSA bacteremia laboratory-identified events via the CDC's National Healthcare Safety Network. State aggregate data on MRSA bacteremia laboratory-identified events are available in the Healthcare-Associated Infections chapter of this report.

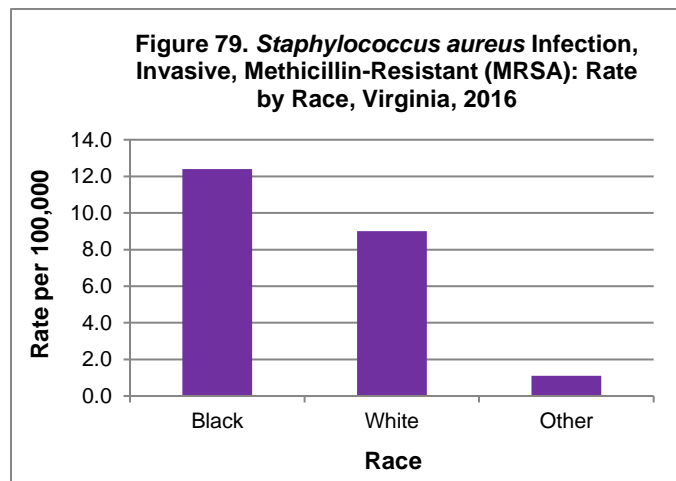
<i>Staphylococcus aureus</i> Infection, Invasive, Methicillin-Resistant (MRSA): 2016 Data Summary	
Number of Cases:	951
5-Year Average Number of Cases:	1,224.2
% Change from 5-Year Average:	-22%
Incidence Rate per 100,000:	11.3

In Virginia, 951 cases of invasive MRSA infection were reported during 2016. This represents a noticeable decrease from the 1,142 cases reported in 2015, and a 22% decrease from the 5-year average of 1,224.2 cases per year. The decrease was likely due to the change in reporting regulations.

In 2016, with the exception of infants, incidence rates generally increased as age increased (Figure 78). Consistent with previous years, persons 60 years and older experienced the highest number of invasive MRSA cases and incidence rate (557 cases, 33.2 per 100,000). With 15 cases, infants had an incidence rate of 14.6 per 100,000 followed by the 50-59 year age group (149 cases, 12.7 per 100,000). Persons 10-19 years of age had the lowest number of cases and lowest incidence of all age groups in 2016 (7 cases, 0.7 per 100,000).



Race was not provided for 187 (20%) of invasive MRSA cases. Among cases with a known race, the incidence rate in the black population (12.4 per 100,000) was higher than the incidence in the white population (9.0 per 100,000) (Figure 79). This represents a change from the past three years when incidence among the black population was not substantially higher than incidence among the white population. Racial disparities in invasive MRSA have been noted nationally, with the black population having two-fold the incidence rate of the white population. In Virginia, incidence was higher in males compared to females (13.5 and 9.2 per 100,000, respectively).



The southwest region had the highest incidence rate (17.3 per 100,000) and the northern region had the lowest (6.9 per 100,000). Incidence is typically higher in the western half of the state. Incidence rates by locality can be viewed in the map below. In general, invasive MRSA infections occur throughout the year with little seasonal variation. However, there were fewer cases in the fourth quarter of 2016 compared to the rest of the year due to the change in reporting regulations.

Four MRSA outbreaks were reported in 2016. All four outbreaks occurred in the central region, two caused invasive infections in hospitals, one caused skin infections at a university, and one caused skin infections among a sports team at a secondary school. In all situations, the facilities instituted numerous control measures that prevented additional cases. In 2016, 42 (4.4%) persons with invasive MRSA infections died. The case-fatality rate was slightly higher in males than females.

According to the most recently published Virginia Reportable Disease List which became effective October 20, 2016, invasive MRSA infection is no longer a reportable condition in Virginia and will no longer be included in the annual surveillance reports.

Staphylococcus aureus Infection, Invasive, Methicillin-Resistant (MRSA), Incidence Rate by Locality, Virginia, 2016

